Amendment to the Specification:

Please replace the paragraph in the specification starting at page 5, line 1 with the following amended paragraph:

--More specifically, the inner housing 21 is preferably fabricated of metal or other material that is impermeable to gases, and is adapted to contain one or more catalyst substrates 27 and 27'. Exhaust gases from an internal combustion engine flow through the catalytic converter 20, as indicated by the arrows 28, including through the numerous small, catalyst-coated pores or channels that are formed in the catalytic substrates 27 and 27'. The inner housing 21 is enclosed within the outer housing 22, and its sidewall 30 is spaced radially inwardly from the sidewall 31 of the outer housing with the supports 25 and 25' supporting it to maintain a relatively constant gap. The outer housing 22 is also preferably fabricated of metal or other material that is impermeable to gases, even in hot and high-order vacuum environments. The annular space <u>or cavity</u> 26 formed between the inner and outer housings 21 and 22 is evacuated to form a sufficient vacuum. The insulating performance of the annular space <u>or cavity</u> 26 is variably controlled by a temperature sensitive hydrogen source device 32 that includes a hydride material, and the vacuum is maintained by a separate vacuum maintenance device 32' that includes a getter material, as discussed below.--

Please replace the paragraph in the specification starting at page 7, line 8 with the following amended paragraph:

--The outer inlet end cone 34 forms an angle to a longitudinal direction, and the inner inlet end cone 33 forms an angle to the longitudinal direction 63, with both the outer and inner inlet end cones opening up as the exhaust gases flow into the catalytic converter 20. The ~~spokes~~ spoke-like bodies 40 of the illustrated supports 25 at the inlet end extend at an angle of about 45 degrees from the longitudinal direction 63, such that they interconnect the cones 33 and 34. The spoke-like bodies 50 of the illustrated supports 25' at the outlet end extend at an angle of about 45 degrees from the longitudinal direction 63, but they extend in an opposite direction to the cones 43 and 44 such that they interconnect the cones 43 and 44. The spoke-like bodies 40 and 50 of the supports 25 form spokes that are circumferentially spaced around the bellows 38 and 48, and there are sufficient spoke-like bodies 40 and 50 such that the inner housing 21 is stably supported within the outer housing 22 for non-contacting concentric support. The appearance in end view is much like a spoked wheel. The combination of the spoke-like bodies 40 with the cones 33 and 34 at the inlet end, and the spoke-like bodies 50 with the cones 43 and 44 at the outlet end, form a support structure capable of maintaining support on the inner housing 21 while still accommodating the different thermal expansion of the inner housing 21 relative to the outer housing 22 (particularly in a longitudinal direction). As illustrated, the spoke-like bodies 40 at the inlet end are longer than the spoke-like bodies 50 at the outlet end. A scope of the present invention is believed to include both configurations, and variations thereof.--

Please replace the paragraph in the specification starting at page 8, line 29 with the following amended paragraph:

--A low melting point metal PCM with a high heat storage has been developed for use in catalytic converters of gasoline-fueled internal combustion engines. The metal PCM material is placed in the intermediate housing 60 in a position adjacent the inner housing 21 (or inner housing 21A of Fig. 2, or inner housing 21B of Fig. 3). The present novel metal PCM has greatly improved characteristics compared to salt PCMs. Metals have greater than 50 times the thermal conductivity of a salt, allowing them to absorb heat faster. Also, the thermal expansion of the metal PCM up to a typical exhaust temperature is in the 5-8% range, which is considerably below the expansion of salt. To effectively use metals in a catalytic converter, the melting point should be below 400 <u>degrees</u> C and have a high heat of fusion. Most low melting point metals have a low heat of fusion and additionally are heavy and commonly toxic. However, the present invention includes a novel metal PCM containing Zinc (Zn), Magnesium (Mg), Aluminum (Al), and Silicon (Si). All four elements used are light, non-toxic, recyclable, and inexpensive materials. The proper combination of these elements results in a low melting point material with a high heat of fusion. The typical ranges for the elements in the PCM are Zn (35-55%), Mg (35-55%), Al (2-20%), Si (0-15%). The melting point range is preferably about 339-350°C, and most preferably at about the eutectic temperature of about 340°C. This PCM was developed to match a typical light-off temperature for an automotive three-way catalyst, such as is commonly used in catalytic converters of modern

passenger vehicles. Also, this metal PCM was selected specifically for its properties of better thermal conductance and lower thermal expansion compared to salt PCMs.--

Please replace the paragraph in the specification starting at page 10, line 18 with the following amended paragraph:

--Two additional catalytic converters are disclosed below. In order to reduce redundant discussion, similar and identical features and components of each successive modification are identified with the same identification numbers as in the earlier described embodiment, but with the addition of a letter, such as "A"[[and]], "B", HH, etc.--

Please replace the paragraph in the specification starting at page 11, line 15 with the following amended paragraph:

--The catalytic converter 20B (Fig. 3) includes a passive thermal management system operably connected to the insulation cavity. Like the active thermal management system, the passive thermal management system controls the heat flow from the inner housing 21B and catalytic material 27B and 27B' by controlling the amount of hydrogen in the vacuum insulated cavity 26B, and further by controlling heat removal from the outer housing 22B. Hydride material is placed in a ~~cavity~~ temperature sensitive hydrogen source device 32B located between the ~~inner and outer tube sections~~ outlet tube section 46B and reinforcement tube 49B', and is retained in place by an apertured and porous ring-shaped retainer on the end facing the insulating cavity 26B. The hydride is activated by temperature, releasing hydrogen

as a function of temperature of the catalytic converter 20B. The addition of hydrogen increases the thermal conductance of heat across the cavity 26B. As known in the art, the value of the thermal conductance is a function of the gas pressure within the cavity 26B. When the catalytic converter 20B temperature drops, the hydride reabsorbs hydrogen, causing the insulating cavity 26B to increase its insulative value. It is noted that there is a known relationship between hydrogen pressure and thermal conductivity, including optimal zones where the greatest conductivity changes take place. These are known in the art (and are publicly available) such that they need not be disclosed herein for an understanding of the present invention.--

Please replace the paragraph in the specification starting at page 13, line 16 with the following paragraph:

--The catalytic converter 20II (Figs. 6 and 7) includes an outlet end section similar to that of catalytic converter 20HH, but the catalytic converter 20II includes a vacuum maintenance device ~~32H'~~ 32II that includes getter material for maintaining a high vacuum in the cavity 26II. Alternatively, or at the same time, the vacuum maintenance device ~~32H'~~ 32II may include hydride material for passively increasing the amount of hydrogen gas within the cavity 26II when the inner housing 21II heats up. By increasing hydrogen gas at high temperature, the insulative value of the vacuum cavity 26II is reduced, thus helping throw off and to prevent overheating of the catalytic converter 20II. By reducing hydrogen gas at low temperature, the insulative value of the vacuum cavity 26II is increased, thus assisting in faster

heat up of the catalyst in the catalytic converter 20II during initial engine starts. Notably, the device ~~32II'~~ 32II is positioned relatively close to the outlet tube 92II such that it quickly receives and absorbs heat from hot gases passing through the catalytic converter 20II. These hot gases are indicative of the temperature of the catalyst material in the catalytic converter 20II. As a result, the device ~~32II'~~ 32II is able to quickly respond to actual temperature conditions of the catalytic material, which can be important to good operation. Notably, the device ~~32II'~~ 32II can also be positioned at the inlet end of the catalytic converter 20II instead of the outlet end.--